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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/782,184

02/18/2004

Paul Ying-Fung Wu

X-1389-1P US

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24309

7590

01/13/2005

XILINX, INC

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EXAMINER

ABRAHAM, FETSUM

ART UNIT

PAPER NUMBER

2826

DATE MAILED: 01/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/782,184

Applicant(s)

WU ET AL.

Examiner

Fetsum Abraham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 28 is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Review (Drawing Review) (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
 Paper No(s)/Mail Date ____

- 4) ☐ Interview Summary (PTO-413)
 Paper No(s)/Mail Date. ____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____

DETAILED ACTION

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 27 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 27 recites the limitation "conductive lid" in claim 23. There is insufficient antecedent basis for this limitation in the claim.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Claims 1,3,5-9,12,18-20,23-26 are rejected under 35 U.S.C. 102(a) as being anticipated by Nakajoh et al (6,762,796).

As for claims 1,3,6,8,12,18-20,23,24 the patent discloses a packaging structure and a method of forming it in figure 9 composed of a substrate (2), a lid (22) for integrated circuit provided by a recessed mid-portion to accommodate a room for a chip (1), a foot portion (23) adapted to be coupled to the substrate of the integrated circuit by bonding means (see column 13, 10-25), a plurality of recesses (27) formed on both lower edges of the foot section as well defined in the patent concerning the particular structure in the figure (see column 13, 30-65) rendering the overall structure as one with beveled edges.

As for claim 5, the beveled edges have corners.

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As for claims 7,9,19,23 the extreme bottom portions of the beveled-edged lid are composed of a planar surfaces and are exposed to the bonding agent that bonds the lid with the substrate.

As for claim 25, adhesive bonding is applied to the structure at the claimed location (see column 13, 20-23).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2,4,10,11,15,16,27 are rejected under 35 U.S.C. 103(a) as being unpatentable over the primary reference in view of Radu et al (6,573,590).

The primary reference discloses all subject matter except attaching the die to the lid by adhesive means. However, Radu et al shows the claimed physical configuration in the front page where the die (204) is adhered to the lid (206) by adhesive means (208). Therefore, it would have been obvious to one skilled in the art to use the same method in the product of the primary reference, since it further increases the reliability of the IC integration in semiconductor packaging.

Claims 13,14,17,21,26 are rejected under 35 U.S.C. 103(a) as being unpatentable over the primary reference.

Although the prior art omits to disclose a solder bond as the applied bonding means of the lid and the substrate, the method is notoriously known in the art of packaging. Therefore, it would have been obvious to one skilled in the art to use the

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method in the prior art since it provides a stable and reliable encapsulation of integrated circuits.

As for claim 21, etching and the rest of the methods in the claim are known methods of removing a portion of any semiconductor-oriented structure.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over the primary reference in view of Fujimoto et al (6,693,748).

Although the prior art may have omits to mention all applicable methods of forming recesses, the secondary reference teaches that injecting molding was a method used to etch down recesses (14) on the packaging structure in the front page.

Therefore, it would have been obvious to one skilled in the art to use the method in the prior art structure since the process provides a reliable and dependable result.

Claim 28 has been allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fetsum Abraham whose telephone number is: 571-272-1911. The examiner can normally be reached on 8:00 - 18:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan J Flynn can be reached on 571-272-1915.



Fetsum Abraham

11/18/04